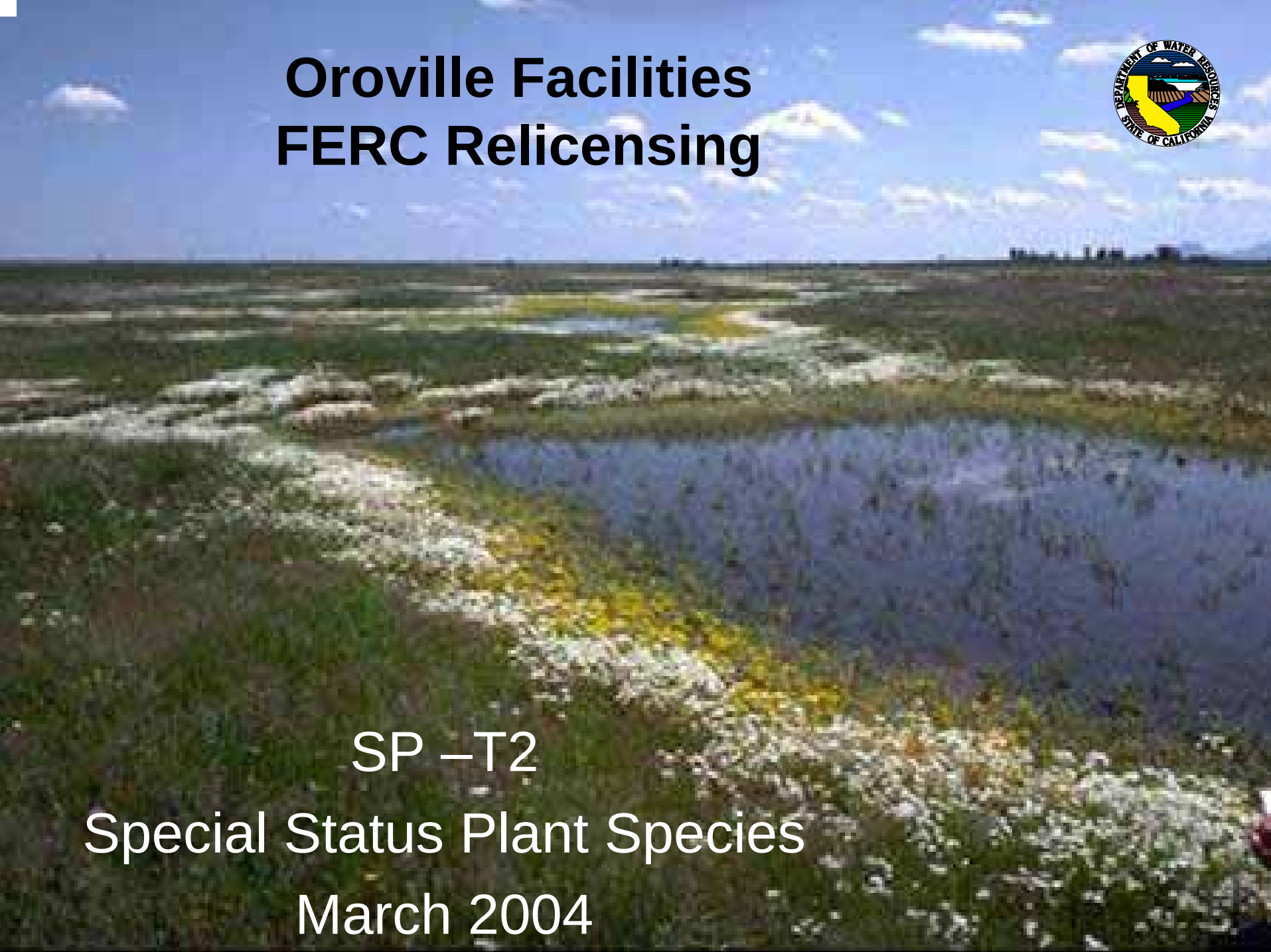
Oroville Facilities
FERC Relicensing



SP –T2

Special Status Plant Species

March 2004

Objectives

This study will provide information:

- **on special status plant species occurrence and distribution**
- **on potential project effects to special status species for use in the environmental assessment**
- **that can identify opportunities for habitat protection and enhancement for special status species**

Need for Study

- **FESA requires evaluation and consultation to avoid take of listed species or adverse modification of habitat. CESA also requires assessment**
- **CEQA/NEPA require assessment of project's impacts on listed species and habitats. CEQA also requires evaluation of project impacts on species that have not been listed under FESA/CESA**
- **provides data for review by federal land management agencies**

Study Area

- **FERC project boundary**
- **Lower Feather River to confluence with the Sacramento River**

A list of special status plant species that have potential to occur within the study area was compiled from:

- **USFWS**
- **CDFG (CNDDB records and Special Plants List)**
- **USFS (Plumas National Forest) Sensitive and Special Interest Species list**
- **CNPS Inventory**

Potential Species List

- 7 federally or State listed species (6 within P.A. and 1 downstream Feather River)
- 42 vascular plant species (CNPS Lists 1,2, or 3)
- 2 mosses and 1 lichen
- 23 additional species of concern (CNPS List 4 or USFS Special Interest species)

Methods

- literature review (descriptions/distributions/ habitats)
- reference material and maps/aerial photos produced for field use
- herbarium specimens reviewed
- extant populations visited where possible to aid in field identification, species habitat, and phenological stage

Species Surveys

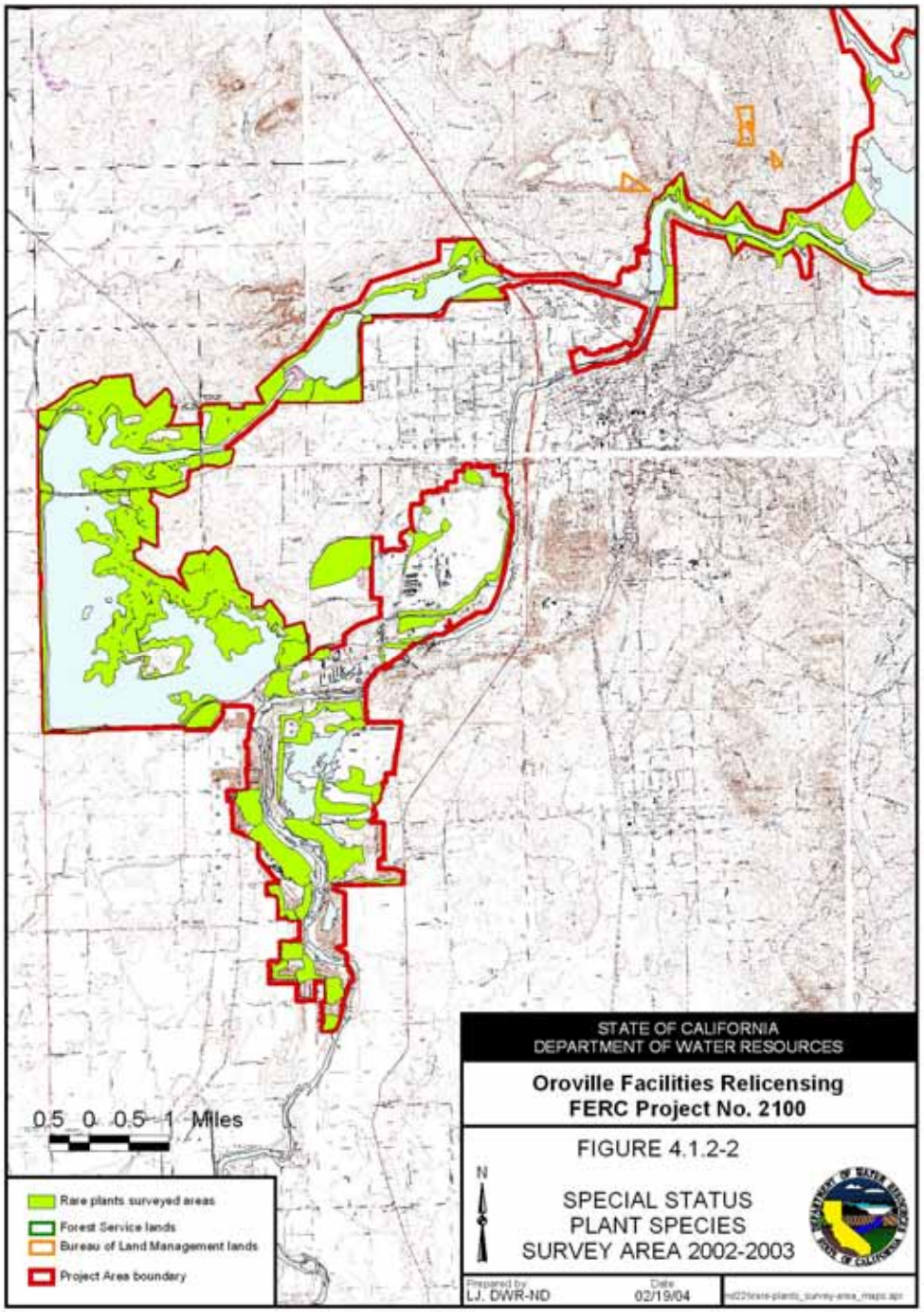
- surveys conducted at appropriate time of year (when species identifiable)
- some areas required multiple visits
- surveys began in early March and continued through September
- T & E species habitats completely surveyed*
- suitable habitats within 150 feet of all project facilities surveyed
- suitable habitats on federal lands surveyed except for inaccessible areas.

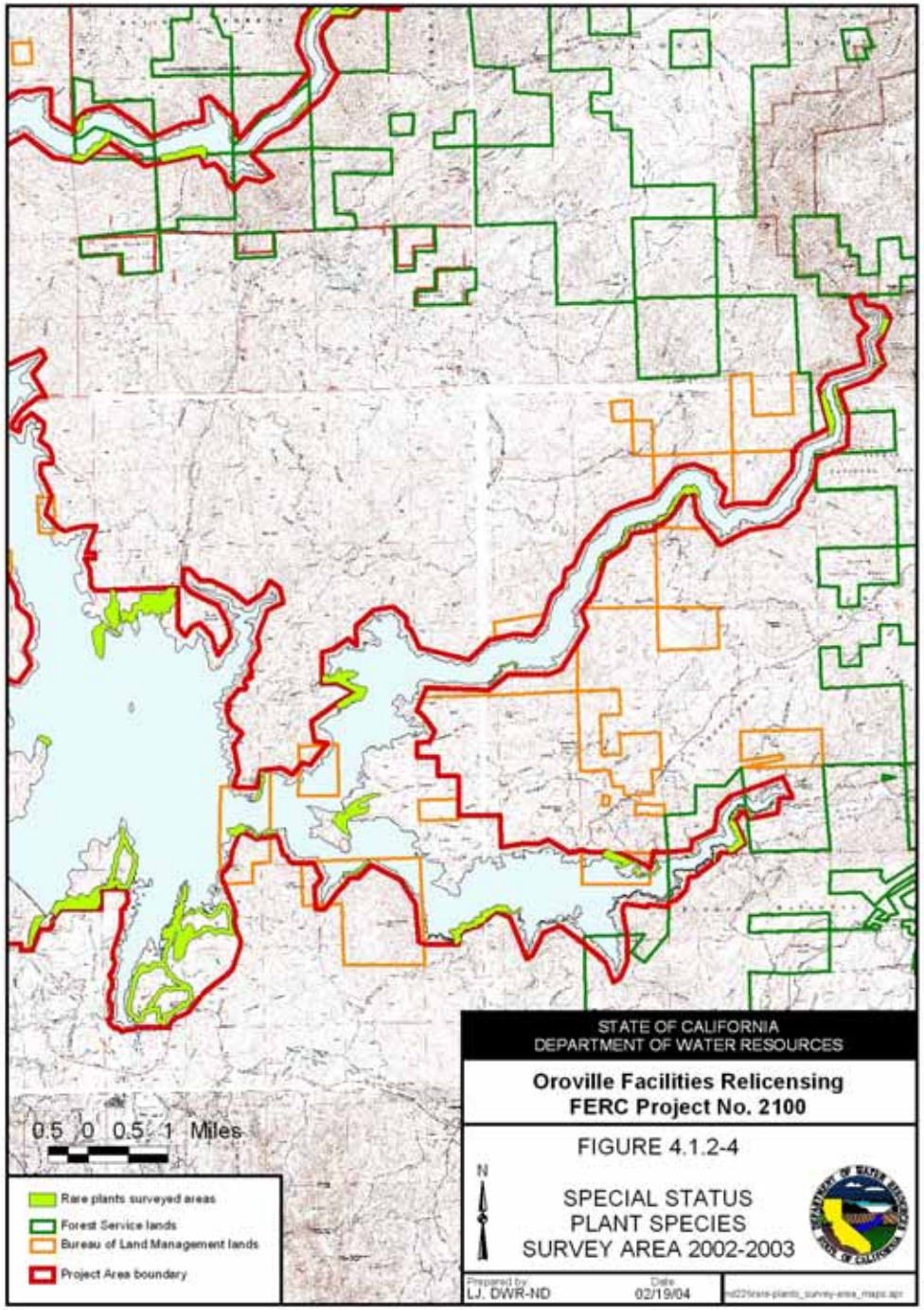
Threatened & Endangered Plant Species

- T & E species – all available habitat surveyed*
- 5 vernal pool species (one early spring flowering and 4 summer flowering species)
- 1 species endemic to serpentine and gabbro soils
- 1 species downstream near Yuba City*

Data Management

- data entered into GIS
- California Native Species form will be submitted to CNDDB
- maps produced
- plant species list compiled of all aquatic and terrestrial species encountered during these surveys


0.5 0 0.5 1 Miles
Rare plants surveyed areas
Forest Service lands
Bureau of Land Management lands
Project Area boundary
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 4.1.2-2
N
SPECIAL STATUS
PLANT SPECIES
SURVEY AREA 2002-2003
Prepared by
LJ, DWR-ND
Date
02/19/04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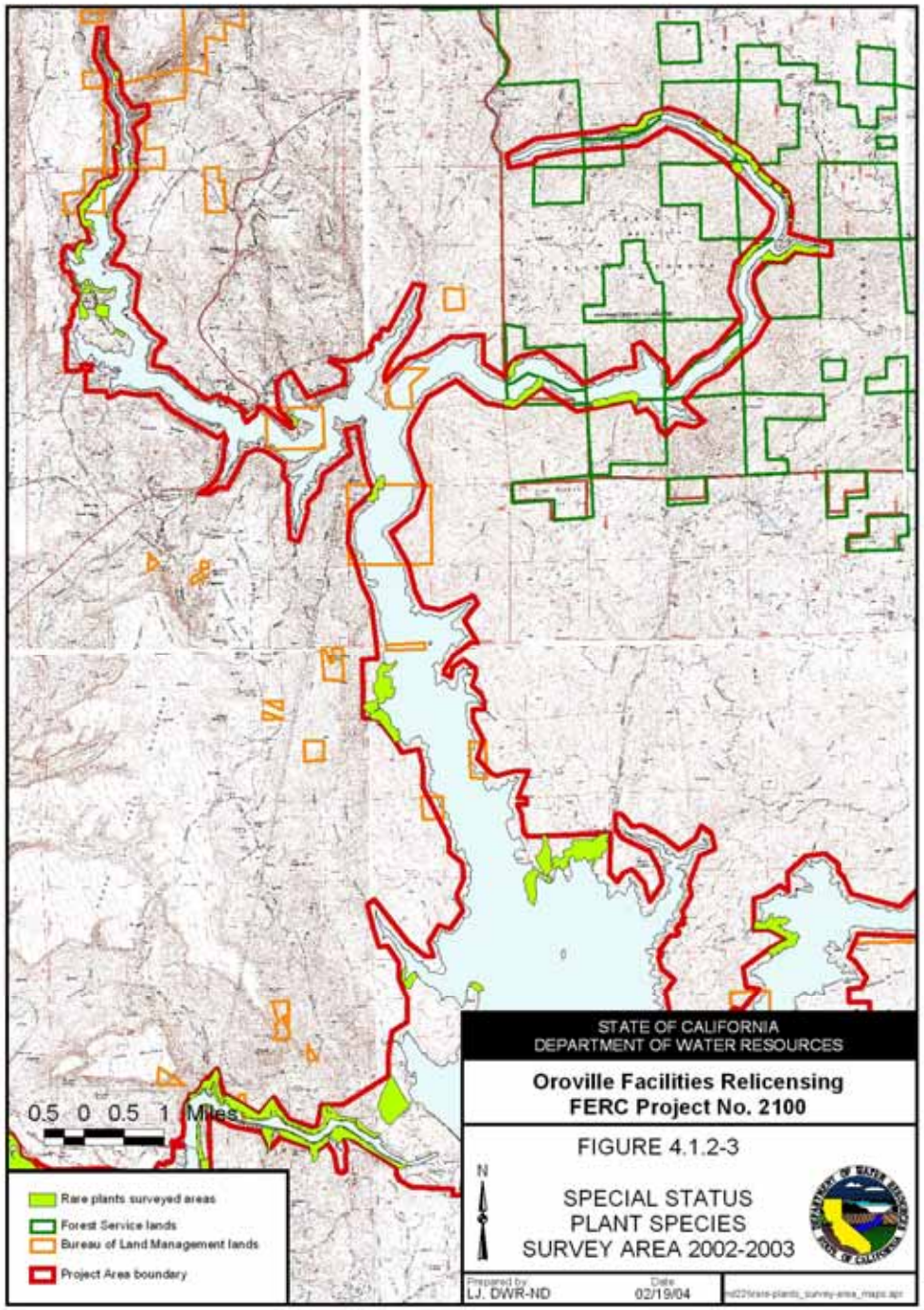
Rare plants surveyed areas
Forest Service lands
Bureau of Land Management lands
Project Area boundary
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 4.1.2-4
N
SPECIAL STATUS
PLANT SPECIES
SURVEY AREA 2002-2003
Prepared by
LJ. DWR-ND
Date
02/19/04


0.5 0 0.5 1 Miles
Rare plants surveyed areas
Forest Service lands
Bureau of Land Management lands
Project Area boundary
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 4.1.2-3
N
SPECIAL STATUS
PLANT SPECIES
SURVEY AREA 2002-2003
Prepared by:
LJ. DWR-ND
Date
02/19/04

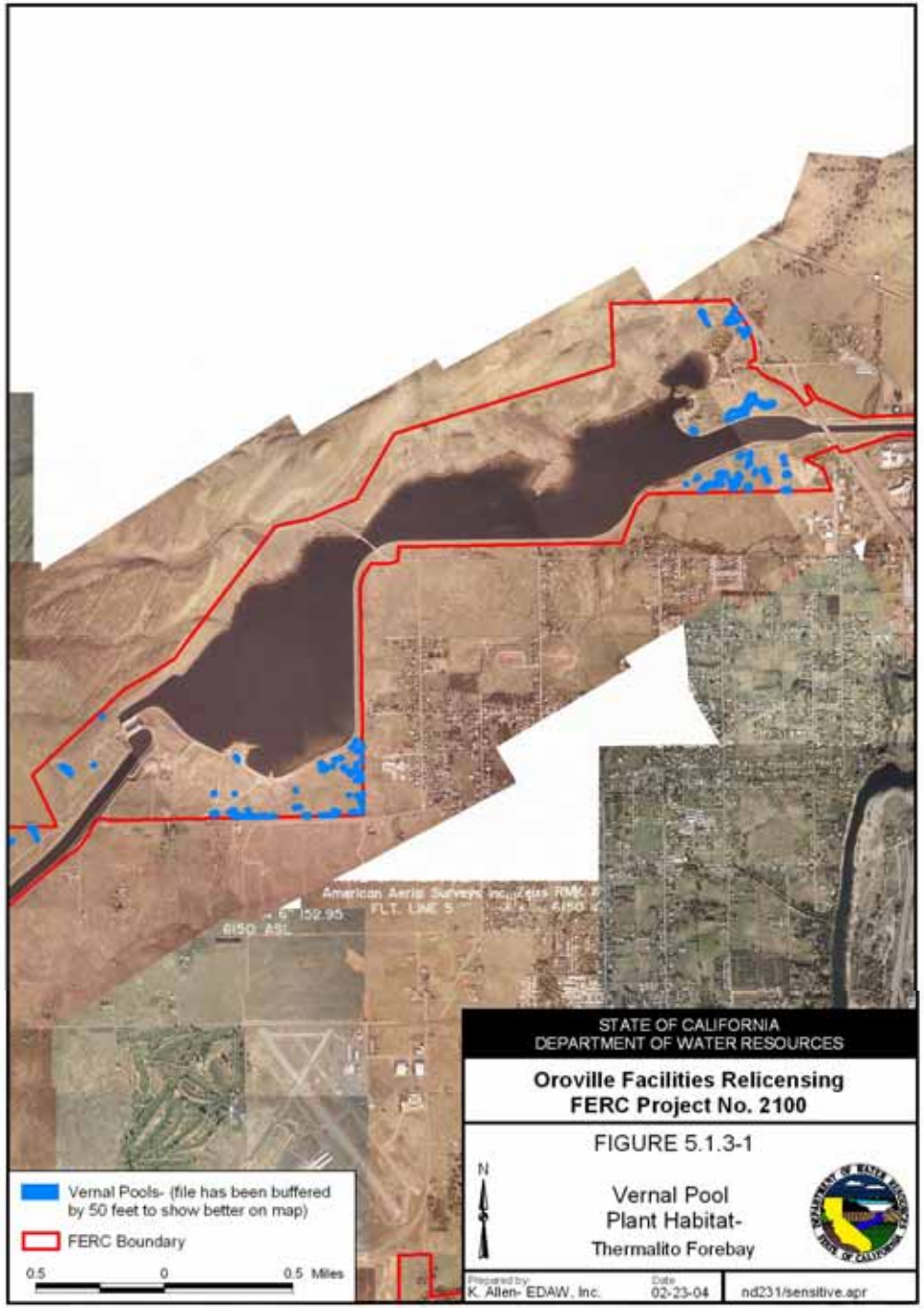
Results

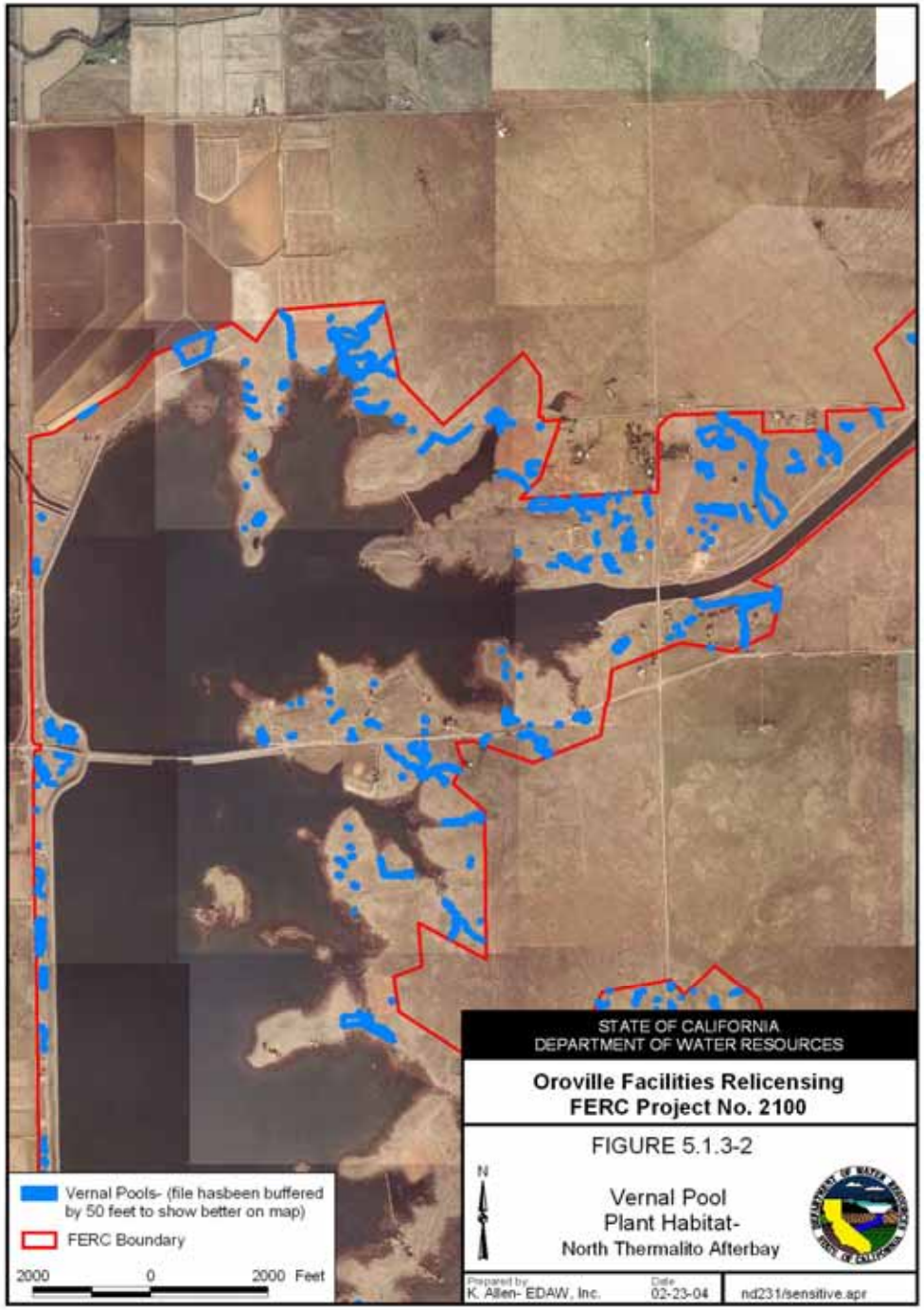
- **no State or federally listed plant species found within the study area**
- **suitable habitat does exist for listed vernal pool species in the grasslands around the Thermalito Complex (~49 acres)**
- **suitable habitat exists for Layne's ragwort on serpentine and gabbro soils around Lake Oroville (~172 acres serpentine and 64 acres gabbro soil**

Vernal Pools

- vernal pools and swales common part of valley grasslands in this area
- Northern hardpan type – occur in areas of hummocky ground on terrace-alluvial derived Redding soils
- range in size from 3 ft diameter to larger pools of nearly an acre.
- pool/swale complexes common – range in size from 0.5 to 5 acres

- majority of pools fairly shallow
- pools and swales habitat for Butte County meadowfoam
- larger deeper pools also present
- habitat for hairy Orcutt grass, slender Orcutt grass, and Greene’s tuctoria
- Hoover’s spurge also found in larger pools, but with little plant cover in the bottom of the pool


Vernal Pools- (file has been buffered by 50 feet to show better on map)
FERC Boundary
0.5 0 0.5 Miles
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 5.1.3-1
N
Vernal Pool
Plant Habitat-
Thermalito Forebay
Prepared by:
K. Allen- EDAW, Inc.
Date
02-23-04
nd231/sensitive.apr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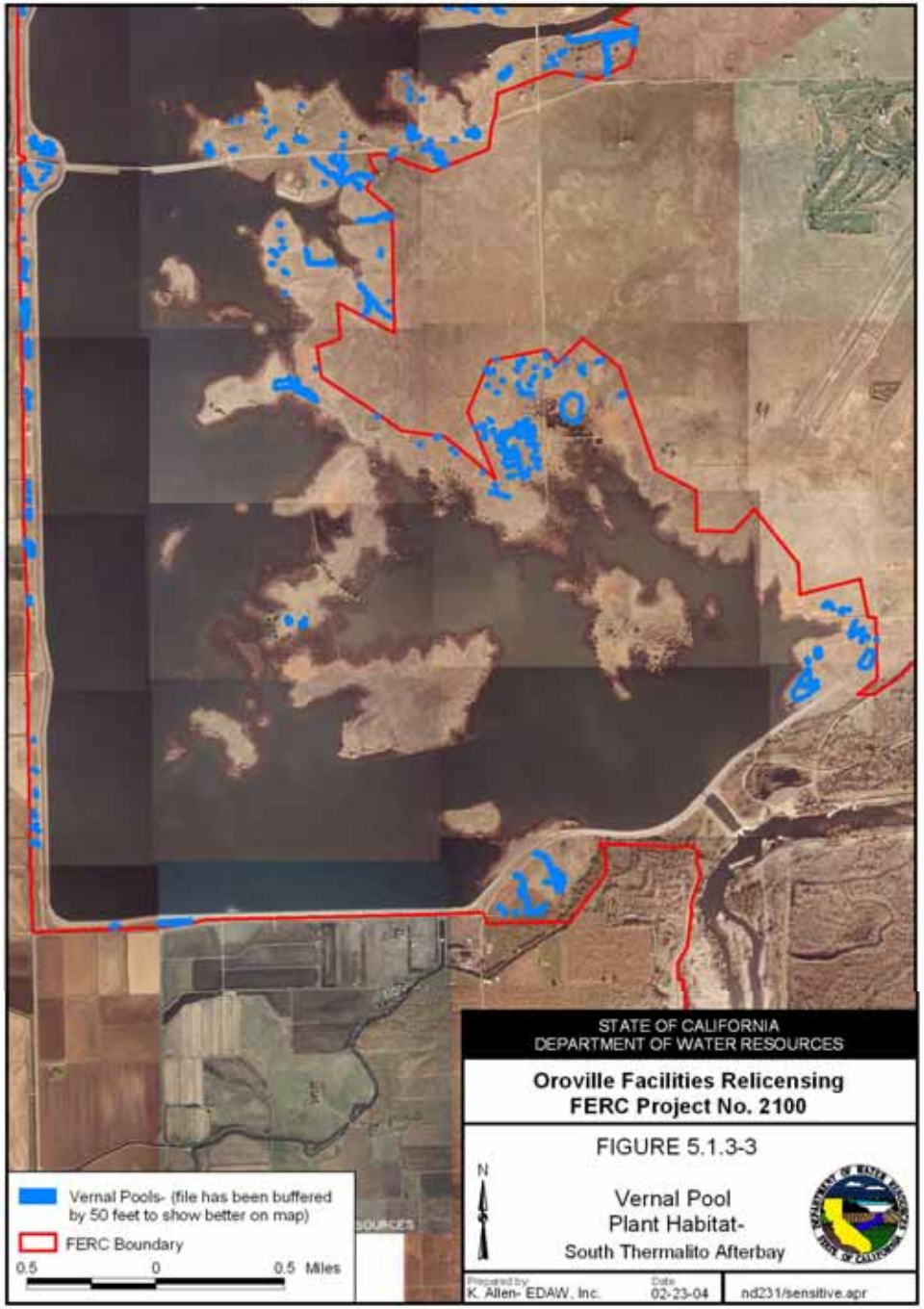
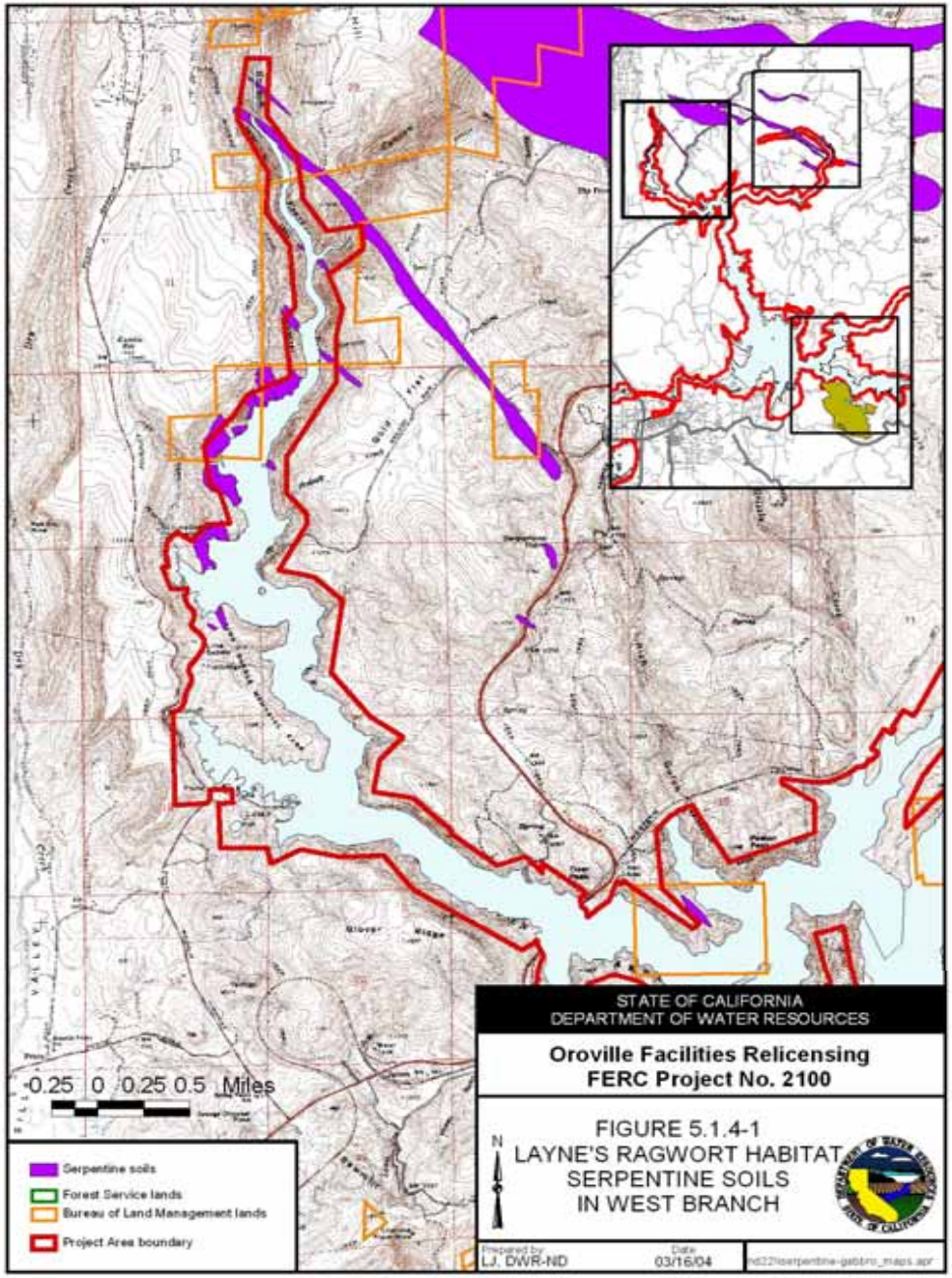
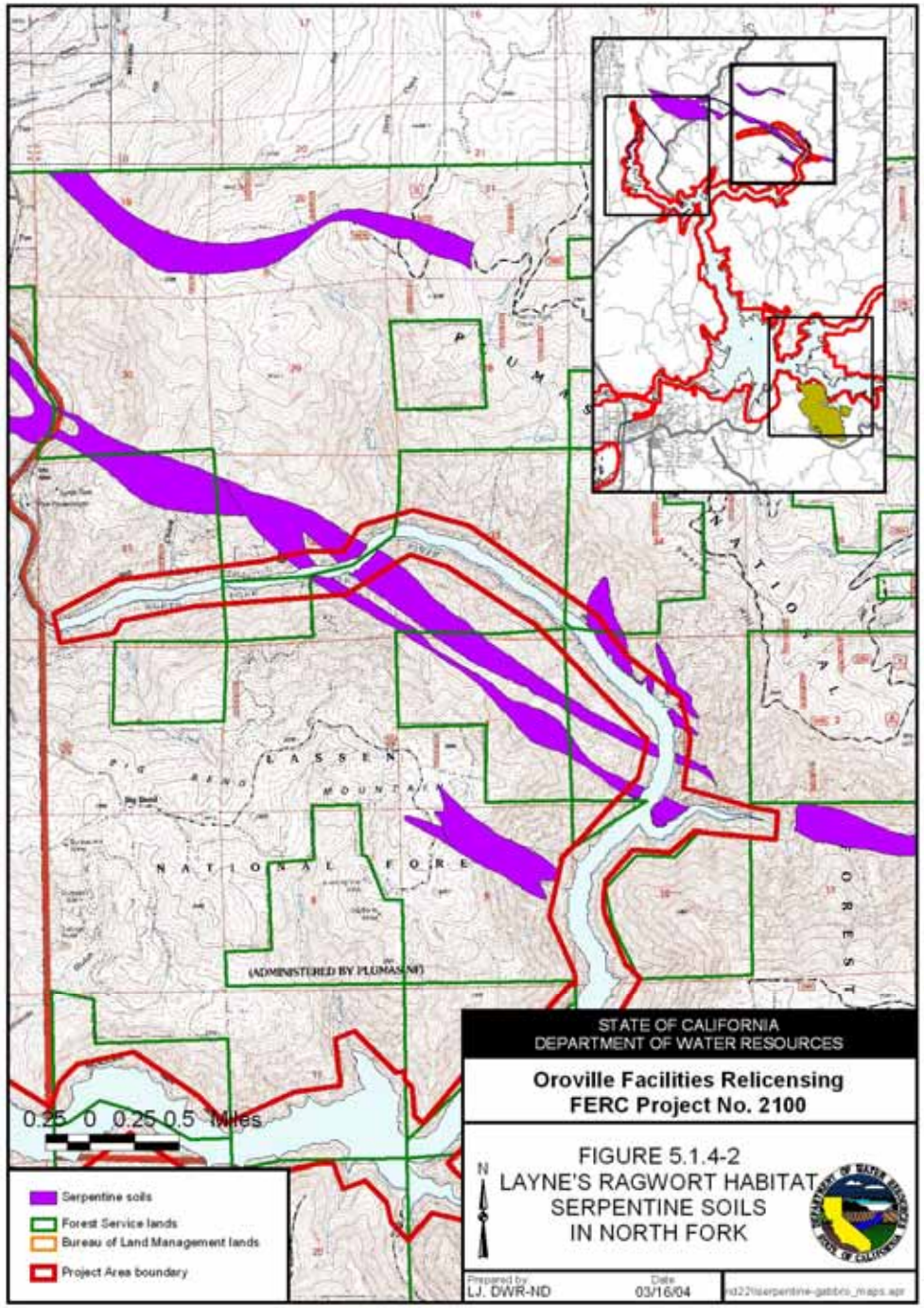
FERC Boundary
2000 0 2000 Feet
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 5.1.3-2
N
Vernal Pool
Plant Habitat-
North Thermalito Afterbay
Prepared by
K. Allen- EDAW, Inc.
Date
02-23-04
nd231/sensitive.apr


Vernal Pools- (file has been buffered by 50 feet to show better on map)
FERC Boundary
0.5 0 0.5 Miles
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 5.1.3-3
N
Vernal Pool
Plant Habitat-
South Thermalito Afterbay
Prepared by:
K. Allen- EDAW, Inc.
Date
02-23-04
nd231/sensitive.apr


4. 30. 2002


-0.25 0 0.25 0.5 Miles
Serpentine soils
Forest Service lands
Bureau of Land Management lands
Project Area boundary
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 5.1.4-1
LAYNE'S RAGWORT HABITAT
SERPENTINE SOILS
IN WEST BRANCH
N
Prepared by
LJ, DWR-ND
Date
03/16/04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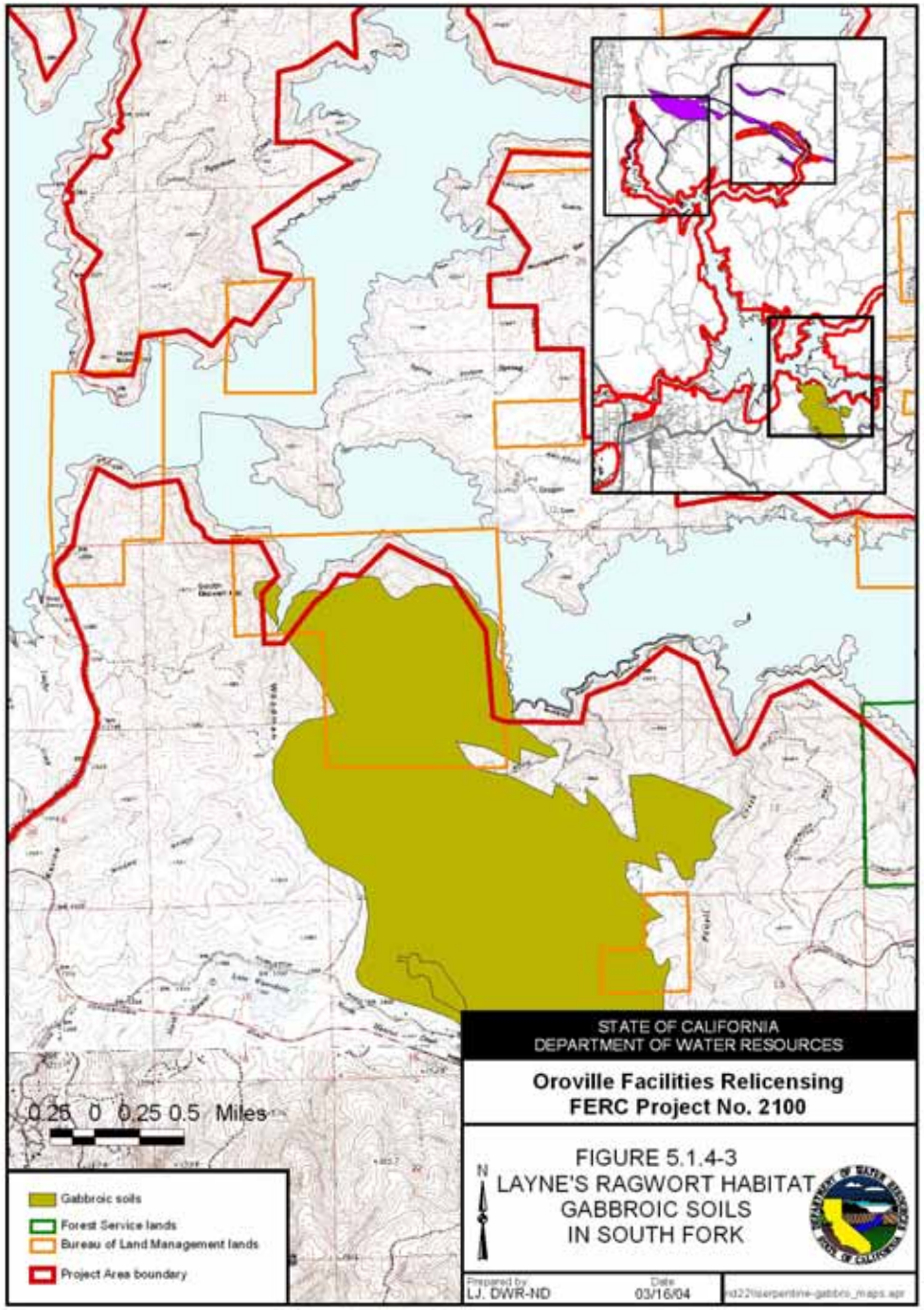
Serpentine soils
Forest Service lands
Bureau of Land Management lands
Project Area boundary
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 5.1.4-2
LAYNE'S RAGWORT HABITAT
SERPENTINE SOILS
IN NORTH FORK
N
Prepared by:
LJ. DWR-ND
Date
03/16/04


0.25 0 0.25 0.5 Miles
Gabbroic soils
Forest Service lands
Bureau of Land Management lands
Project Area boundary
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 5.1.4-3
LAYNE'S RAGWORT HABITAT
GABBROIC SOILS
IN SOUTH FORK
N
Prepared by
LJ, DWR-ND
Date
03/16/04

Hartweg's golden sunburst

- federally and State listed
- historically known from banks of Feather River near junction with the Yuba River (26 miles south of project area
- type locality has been extirpated
- nearest known occurrence is eastern San Joaquin Valley
- surveys conducted during riparian studies along banks of Feather River
- no surveys were conducted in project area for this species due to distance from project area (however, habitat was surveyed during surveys for other species and at the right time of year.

12 special status species found within the project area

- Fox sedge
- Brandegee's clarkia
- White-stemmed clarkia
- Butte County calycadenia
- Mosquin's clarkia
- Four-angled spikerush
- Ahart's paronychia
- Sanford's arrowhead
- Cut-leaved ragwort
- Columbian watermeal
- Dissected-leaved toothwort
- Butte County fritillary


Wolffia
brasiliensis

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- Brandegee's clarkia
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- Butte County calycadenia
- Mosquin's clarkia
- Four-angled spikerush
- Ahart's paronychia
- Sanford's arrowhead
- Cut-leaved ragwort
- Columbian watermeal
- Dissected-leaved toothwort
- Butte County fritillary

CNPS List 4/USFS Special Interest

- Humboldt lily
- Sylvan microseris
- Shield bracted monkeyflower
- Small-flowered monkeyflower
- Sickle-fruit jewel flower

Number of plant species

- 674 plant species identified in project area during 2002/2003 surveys
- 485 (72%) native species
- 189 (28%) non-native species

Project related effects

Potential impacts to special status plant species and their habitats may occur from:

- **facility maintenance or development**
- **vegetation and/or wildlife habitat management**
- **noxious weed management**
- **road maintenance and development**
- **recreational use or development and/or maintenance associated with recreations areas.**
- **changes in hydrologic patterns (i.e. runoff) from project related activities**

Thermalito Complex

- changes in water levels could have a beneficial or detrimental effect on special status species around the Thermalito Complex.
- four-angled spikerush, Sanford's sagittaria, and fox sedge have most likely benefited from the consistent water levels within these systems
- development of additional brood ponds will likely increase suitable habitat for above species
- wildlife habitat management, weed management, and fertilizer use may adversely affect these species

- changes in water levels in Lake Oroville and/or changes in flows in the Feather River downstream of the Oroville Dam will have little impact to special status plant species in the project area
- maintenance and development activities around project facilities, including recreational areas could impact a number of special status plant species